

**SWITCH OPERATION SCHEDULING WITH CONCURRENT CONNECTION AND  
QUEUE SCHEDULING**

5

**Laurent Moll**

**ABSTRACT OF THE DISCLOSURE**

A system for servicing data transactions within a processing device using common data paths. The system is broadly comprised of: a plurality of source agents operable to transmit a plurality of data cells; a plurality of destination agents operable to receive a  
10 plurality of data cells; a plurality of virtual channels for transporting the data cells between the source agents and the destination agents; and a switch for connecting selected pairs of source agents and destination agents for transmission of data over predetermined virtual channels. The switch of the present invention comprises: an active state combiner operable to generate active state data corresponding to all possible combinations of the source agents  
15 and the destination agents that are active for transmission or reception, respectively, of data cells; a connection scheduler operable to process the active state data to generate connection grants for selected pairs of source and destination agents; and a plurality of virtual channel schedulers operable to process the active state data to generate virtual channel grants for selected pairs of source and destination agents. The connection scheduler and the virtual  
20 channel scheduler process the active state data simultaneously to generate the connection grants and the virtual channel grants to generate the agent grants to allow the data cells to be transferred. In the switch of the present invention, data cells are transferred between selected source agents and selected destination agents over selected virtual channels during a switch processing cycle.